

release notes

# HP StorageWorks HA-Fabric Manager

**Product Version:** FW 06.02.00/HAFM SW 08.02.00

Fourth Edition (September 2004)

**Part Number:** AA-RUR6D-TE/958-000288-008

These release notes contain late-breaking and supplemental information for the HP StorageWorks HA-Fabric Manager (HAFM).

For the latest version of these release notes and other HAFM documentation, access the following HP storage web site: <http://www.hp.com/country/us/eng/prodserv/storage.html>.



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HP StorageWorks HA-Fabric Manager release notes  
Fourth Edition (September 2004)  
Part Number: AA-RUR6D-TE/958-000288-008

## About this document

These release notes describe the contents of the HAFM software kit, and any last-minute additions or notes on the configuration or use of HAFM software.

Be sure to read these notes before installing the HAFM. This information is periodically updated and available on the following HP web site:

<http://www.hp.com/country/us/eng/prodserv/storage.html>.

This section describes the content reflected in this document, including:

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## Release notes information

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## Intended audience

This document is intended for customers who purchased HAFM. HAFM 08.02.00 applies to the 1U rack-mount appliance only and cannot be installed on the notebook server.

## Other HAFM documentation

In addition to these release notes, HP provides the following corresponding information:

- *HP StorageWorks HA-Fabric Manager Appliance Installation Guide*, AA-RU5FB-TE/958-000324-001
- *HP StorageWorks HA-Fabric Manager User Guide*, AA-RS2CE-TE
- *HP StorageWorks HA-Fabric Manager Transition Guide*, AA-RV1MA-TE/958-000384-000
- *HP StorageWorks Director and Edge Switch Glossary*, AA-RU5JB-TE
- *HP StorageWorks C-FCSWAPI SDK Bridge Agent Installation Instructions*, AA-RVJ1A-TE/958-000405-000

## CD-ROM directory structure

The HAFM software kit includes; one CD, the HP StorageWorks ha-fabric manager documentation and software CD (part number 516-000024-820, Rev B), which contains the files necessary to install HAFM. The HP StorageWorks ha-fabric manager documentation and software CD also contains the following items at the root level directory:

- **Open\_Bridge\_Agent\_Installer**—Directory for installer
  - `version.txt`—File used for installer
  - `copyright.txt`—File used for installer
  - `BridgeAgentInstall.exe`—File used for installer
- **HAFM82\_win**—Directory for init file
  - `Setup.ini`—File used for HAFM installation
- **Autorun.inf**—Autorun info file for HAFM installation
- **data1.cab**—File used for HAFM installation
- **data1.hdr**—File used for HAFM installation
- **data2.cab**—File used for HAFM installation
- **HAFM.ico**—File used for HAFM installation
- **ikernel.ex\_**—File used for HAFM installation
- **layout.bin**—File used for HAFM installation
- **setup.bmp**—File used for HAFM installation
- **setup.exe**—Install file for HAFM applications
- **setup.inx**—File used for HAFM installation
- **Uninstall.ico**—File used for HAFM installation
- **version.txt**—Contains the version number of the HAFM Applications
- **copyright.txt**—Contains the copyright information
- **Documents**
  - `README.TXT`—HP document structure; late-breaking doc changes
  - `AA-RU5FB-TE/958-000324-001`—*HP StorageWorks HA-Fabric Manager Appliance Installation Guide*
  - `AA-RS2CE-TE`—*HP StorageWorks HA-Fabric Manager User Guide*
  - `AA-RV1MA-TE/958-000384-000`—*HP StorageWorks HA-Fabric Manager Transition Guide*
  - `AA-RU5JB-TE`—*HP StorageWorks Director and Edge Switch Glossary*
  - `AA-RVJ1A-TE/958-000405-000`—*HP StorageWorks C-FCSWAPI SDK Bridge Agent Installation Instructions*

## HAFM software version 08.02.00

The HAFM appliance has the latest version of the HAFM software pre-installed. It is also contained on the HP StorageWorks ha-fabric manager documentation and software CD (Part Number 516-000024-820, Rev B). HAFM 08.02.00 applies to the 1U rack-mount appliance only and cannot be installed on the notebook server.

All remote clients running down-level versions of HAFM are required to re-install the client application. You must exit HAFM before installing the latest version of HAFM. When logging in to the HAFM appliance via the remote client, an error message is displayed stating that the new version must be installed. Follow the instructions to install the new version of the remote client.

## Important information

This section describes important information related to the HAFM software, the Edge Switch 2/24, Edge Switch 2/32, Director 2/64, and Director 2/140.

## Upgrading from previous HAFM versions requires a special process

If you have an HAFM notebook server or an HAFM appliance and you are upgrading to HAFM 08.02.00, you must follow the directions as detailed in the *HP StorageWorks HA-Fabric Manager Transition Guide*, to successfully transfer your SAN configuration information to HAFM 08.02.00.

## HAFM 08.02.00 improvements

The *HP StorageWorks HA-Fabric Manager Transition Guide*, shipped with the product, explains upgrading HAFM from an earlier version.

### Improved user interface

The user interface was redesigned to provide a number of improvements.

### Role-based access control

Role-based access control gives you more control over user accounts and permissions. You can define various user access levels with rights to perform specific actions and select certain views.

**Zoning functionality improved**

Various functionality has been added to the zoning feature, including:

- Zone replacement
- Zone set comparisons
- Zone set export and import

New zoning importing features require special procedures. Refer to the online help or user guide for instructions.

**Preferred Path support**

This feature is a new feature available through the Element Managers. You can define a Preferred Path by selecting the preferred interswitch link (ISL) to use between an ingress switch port and a remote switch. This feature provides management control over routes taken across the fabric to better accommodate network traffic engineering.

**Performance Monitor**

Use the Performance Monitor feature to measure and graphically display performance statistics, historic metrics, and future trends of every switch port on your SAN. Identify over-utilized and under-utilized ports, as well as trends and problem areas so they can be addressed quickly.

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**Note:** This is an optional feature. Please contact your sales representative to purchase.

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**Event Management module**

Use the Event Management feature to define and monitor specific conditions or events and then trigger actions, such as report generation or pager alerts, when conditions occur. This feature enables you to automate routine tasks to reduce the amount of hands-on SAN management necessary.

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**Note:** This is an optional feature. Please contact your sales representative to purchase.

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## SAN Planning module

Use the Planning feature to plan a new SAN and then evaluate that SAN using best-practice configuration rules. This ensures the design of a scalable, cost-effective storage network that is best suited to your needs. You can save considerable time and money by planning your SAN before implementing it.

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**Note:** This is an optional feature. Please contact your sales representative to purchase.

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## HAFM and firmware compatibility

[Table 1](#) lists the minimum version of HAFM that can run with the various versions of firmware for the directors and edge switches. HAFM 08.02.00 allows managing of directors and edge switches running any of the versions of firmware listed in [Table 1](#).

**Table 1: HAFM and firmware compatibility**

Firmware version	HAFM version (minimum)
01.01.02	04.00.01 (HP EFCM)
01.02.02-06	04.01.02-14 (SDCM)
01.03.00-35	04.02.00-40 (HP EFCM)
01.04.00-01	04.02.00-40 (SDCM)
02.00.00-33	06.00.00-45 (HP EFCM)
02.00.02-01	06.00.02-06
04.01.02-04	06.03.01-05
05.02.00-13	07.01.00-09 (Notebook Server)
05.02.00-13	07.02.00-09 (HAFM Appliance)
05.05.00-12	None (Edge Switch 2/12)
06.01.00-18	07.01.00-09 (Notebook Server)
06.01.00-18	07.02.00-09 (HAFM Appliance)
06.01.00-18	08.02.00 recommended (HAFM Appliance)



**Table 1: HAFM and firmware compatibility (Continued)**

Firmware version	HAFM version (minimum)
06.02.00-22	07.01.00-09 (Notebook Server)
06.02.00-22	07.02.00-09 (HAFM Appliance)
06.02.00-22	08.02.00 recommended (HAFM Appliance)

## Prerequisites for installing and using firmware 06.02.00

If you are using HAFM, firmware 06.02.00 requires HAFM 07.01.00 or later (check with HP Customer Support for the latest shipping version of HAFM). HAFM should be at the minimum level before installing the new firmware.

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**Note:** HAFM is not required for operating hardware products using the firmware.

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All directors and edge switches in the same fabric should have the same firmware level installed. Although products may co-exist in a fabric running different levels of firmware, all products *must* be at the same major functional release level.

## Upgrading from an earlier version of firmware

Upgrading to firmware 06.02.00-22 is non-disruptive to attached devices. The director or edge switch is not required to be offline before performing an upgrade operation. Limitations to upgrades are clearly identified if there are any limitations to performing the operation.

Before upgrading firmware, it is highly recommended that you back up the director or edge switch configuration. Refer to your HP StorageWorks Director or Edge Switch Element Manager User Guide for more information. Embedded Web Server (EWS) also provides an option to print or save product configuration to a file. Refer to the *HP StorageWorks Embedded Web Server User Guide* for more information.

All products must be running firmware 05.00.00 or later before upgrading to 06.02.00-22. If a switch is operating with a firmware level earlier than 05.00.00, you must upgrade to 05.xx.xx before installing 06.02.00-22.

Upgrades and downgrades are supported only from one major release to the next, such as from 05.xx.xx to 06.02.00-22. If EWS is used for upgrades and downgrades, and this rule is not followed, errors occur and there may be a disruption to attached devices.

If upgrading to firmware 06.02.00-22 requires you to upgrade from 04.xx.xx to 05.xx.xx in the process, there are special considerations. If you are upgrading a director, see [“Upgrading firmware on a director from 04.xx.xx to 05.xx.xx”](#) on page 10. If you are upgrading an edge switch, see [“Upgrading firmware on an edge switch from 04.xx.xx to 05.xx.xx”](#) on page 11.

A small number of early-shipped Surestore Director FC-64 units may receive one of the following messages when they upgrade to firmware 05.02.00-13:

- HAFM—Firmware cannot be loaded due to insufficient CTP memory.
- EWS—File System Error: Insufficient memory for new firmware version.

This occurs only in certain units with CTP cards. Units with CTP2 cards do not have this issue.

If you get one of these messages during the upgrade, the firmware upgrade failed, but the unit continues working with the existing firmware without an interruption in service. The upgrade process checks for sufficient memory before activating the new firmware image. The firmware upgrade does not complete without sufficient memory. Please contact HP Customer Support if you receive this message.

## Upgrading firmware on a director from 04.xx.xx to 05.xx.xx

An issue has been identified in release 04.xx.xx if the contents of the nonvolatile storage (NVRAM) on the active CTP become corrupted. Once the configuration has been loaded, this corruption is not detected until an IPL/IML, power cycle, or firmware code load. If the NVRAM in the active CTP has corrupted contents, the firmware load can cause the configuration to reset to factory defaults, which could cause a system outage. By using the following procedure to upgrade firmware, configuration can be preserved and a system outage can be avoided. This issue was corrected with firmware 05.02.00-13 and later.

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**Note:** Step 4 of the following procedure is not required if you are upgrading from 05.xx.xx or later.

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To safely upgrade firmware on a director, perform the following:

1. Upgrade HAFM software on the HAFM server/appliance to 07.01.00 (minimum).

2. Download firmware 05.02.00-13 using the **Firmware Library** option under the Product Manager Maintenance menu.
3. Back up the director configuration using the **Backup & Restore Configuration** option under the Product Manager Maintenance menu.
4. Using the Product Manager, execute a CTP swap:

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**Note:** You must have maintenance authorization rights to access HAFM Product/Element Manager menu options used in this procedure.

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- a. From Product/Element Manager Hardware view, verify that an amber LED indicator is not displayed for either CTP card.
- b. Right-click the CTP card you believe to be active. From the right-click pop-up menu, choose **FRU Properties**. Verify that it is the active CTP card.
- c. Right-click the active CTP card and choose **Switchover** from the pop-up menu.

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**Note:** The director loses its Ethernet connection for a short period during the switchover process.

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When switchover occurs, the green LED illuminates on the backup CTP card to indicate that it is now the active card.

5. Upgrade the firmware to 05.02.00-13 on each director using the **Send** option on the Firmware Library dialog box.

## Upgrading firmware on an edge switch from 04.xx.xx to 05.xx.xx

An issue has been identified in release 04.xx.xx if the contents of the nonvolatile storage (NVRAM) on the CTP become corrupted. Once the configuration has been loaded, this corruption is not detected until an IPL/IML, power cycle, or firmware code load. If the NVRAM in the CTP has corrupted contents, the firmware load can cause the configuration to reset to factory defaults, which could cause a system outage.

Edge switch products already running 05.01.00 or later continually validate the NVRAM configuration, so risk of an outage is extremely low. For edge switch products running an earlier version of firmware, the risk of an outage increases due to the NVRAM issue. If an outage compromises system integrity, HP recommends that the edge switch firmware upgrade be a scheduled maintenance action that anticipates the failure of switch connectivity. This issue was corrected with firmware 05.02.00-13 and later.

To safely upgrade firmware on a edge switch, perform the following:

1. Upgrade HAFM software on the HAFM server/appliance to 07.01.00 (minimum).
2. Download firmware 05.02.00-13 using the **Firmware Library** option under the Product Manager Maintenance menu.
3. Back up the edge switch configuration using the **Backup & Restore Configuration** option under the Product Manager Maintenance menu.
4. Upgrade the firmware to 05.02.00-13 on each edge switch using the **Send** option on the Firmware Library dialog box.

## Considerations for downgrading the version of firmware

Directors or edge switches are not required to be offline before performing a firmware downgrade operation. Limitations to downgrades are clearly identified if there are any limitations to performing the operation.

Before downgrading firmware, it is highly recommended that you back up the director or edge switch configuration. Refer to your HP StorageWorks Director or Edge Switch Element Manager User Guide for more information. EWS also provides an option to print or save product configuration to a file. Refer to your *HP StorageWorks Embedded Web Server User Guide* for more information.

Downgrading directly to a release before 05.00.00 from 06.02.00-22 is not allowed. To downgrade to a release before 05.00.00, you must first downgrade to 05.YY.ZZ.

Upgrades and downgrades are supported only from one major release to the next, such as from 05.xx.xx to 06.02.00-22. If EWS is used for upgrades and downgrades, and this rule is not followed, errors occur and there may be a disruption to attached devices.

**Note:** The Director 2/140 and the Edge Switch 2/24 cannot be downgraded earlier than 04.01.00, and the Edge Switch 2/12 cannot be downgraded earlier than 05.05.00.

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Downgrades directly to 05.03.01 from 06.xx.xx is not concurrent when the second-generation Edge Switch 2/24 is configured in **Open Fabric** operating mode. In other words, downgrades in **Open Fabric** mode cannot be done with the second-generation Edge Switch 2/24 online without disrupting port operations. Since second-generation Edge Switch 2/24 switches cannot be downgraded earlier than 05.03.01, they must be configured in **Homogeneous Fabric** Interoperability mode to remain concurrent. If this process is not followed, I/O through the switch may be significantly disrupted or stopped. Recovery for this situation is accomplished by reactivating the current zone set.

If you are installing a new or replacement second-generation Edge Switch 2/12 or Edge Switch 2/24 into an existing 05.xx.xx fabric, HP recommends that you downgrade the unit before installing it into the fabric.

Downgrading to 05.05.00 is supported only on first-generation Edge Switch 2/12 switches. Second-generation Edge Switch 2/12 switches can be downgraded only to 05.05.01. Second-generation Edge Switch 2/24 switches can be downgraded only to 05.03.01.

If a Director 2/140 in a multiswitch fabric is downgraded earlier than 06.02.00, ISLs could become segmented if there are any other switches in the fabric operating with an firmware version earlier than 06.01.00. To prevent this situation, downgrade all Director 2/140s in the fabric to 06.01.00 before downgrading any products in the fabric to 05.xx.xx. This problem only exists with Director 2/140s in the fabric. HAFM displays a warning message if a downgrade from 06.02.00 is attempted, but you can continue with the downgrade if desired.

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**Note:** The warning message is displayed when downgrading any model from 06.02.00, but only applies to downgrade operations for the Director 2/140.

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Firmware downgrades should not be performed using EWS and Internet Explorer v5.00.3315.1000x. If this operation is performed, the download operation may not complete and may eventually time-out leaving the switch with the previous version of firmware.

## **Logging out of Microsoft Windows after access to HAFM appliance is recommended**

After you access the HAFM appliance desktop via a web browser using the TightVNC application, HP recommends that you log out of Microsoft Windows before disconnecting your web browser access. This prevents unauthorized access to the HAFM appliance by someone using the TightVNC application to access the HAFM appliance. When the new user attempts to log into the HAFM appliance, the Welcome to Windows screen is displayed, and a Windows user name and password are required to access the HAFM appliance Windows desktop. HAFM remote client access does not require the HAFM appliance to be logged in to Windows.

## **OSMS change**

Open Systems Management Server (OSMS) is now available as a standard feature. OSMS can be enabled/disabled via EWS, Command Line Interface (CLI), and HAFM.

## **Default zone is disabled by default**

The default zone on the directors and edge switches is disabled by default. Zoning must be configured in order for any devices connected to the directors or edge switches to communicate.

## **Some IP addresses must be avoided**

If you use HAFM to manage other M-Series Fabric directors and edge switches, when you select IP addresses for edge switches, directors, and for the HAFM appliance, do not use IP addresses in the following range:

192.168.0.0 through 192.168.0.255—This subnet is used internally to the HAFM appliance. Using an IP address in this range causes the call-home feature to function incorrectly.

## **Hard zoning**

Hard zoning is a security enhancement introduced in firmware 05.01.00-24 that prevents ports from accessing devices outside their zones. Hard zoning is enabled by default when using firmware 05.01.00-24 or greater and cannot be disabled. All HP-approved host bus adapters (HBAs) limit access to devices within their zones, so you will not see a change in fabric behavior unless you are using nonstandard HBAs. Hard zoning improves security against intruders that load nonstandard HBA drivers.

Hard zoning is compatible with legacy zone definitions, including World Wide Name (WWN) and port zoning. You can use your existing zones and zone sets without any changes. There are no changes to the zoning interfaces, so you do not need to modify your zone management practice, modify your documentation, or retrain Storage Area Network (SAN) administrators.

Hard zoning controls access at the ingress port. When a port attempts to send a frame to a destination outside its zones, the frame is blocked. A Class 2 frame is fabric rejected, and a Class 3 frame is dropped.

## Zoning change RSCN control

Normally, when a zone set is activated, a fabric format domain Register State Change Notification (RSCN) is sent to all devices in the fabric. With firmware 05.00.00 or later, you can disable these RSCNs from being sent. This is done using the **Suppress RSCNs on zone set activations** check box on the Configure Switch Parameters dialog box.

This feature significantly changes the normal behavior of the fabric. Devices will have no warning when zones change and will not automatically update their zoning information. The ability to suppress RSCNs is disabled (check box is not selected) by default. This feature can be configured through HAFM, EWS, and CLI.

## SNMP changes

Firmware 06.02.00-22 supports the following management information base (MIB) versions on all products:

- Fabric Element MIB: 1.1
- MIB-II MIB: RFC-1213, non-implemented sections are not included
- FCEOS MIB: 2.0
- SNMP Framework MIB: RFC-2271 (1997/09/30)
- FA MIB: 3.0
- FA MIB: 3.1

SNMP requests can be received in either 3.0 or 3.1 of the Fibre Alliance (FA) MIB, and the switch responds in the same version. The switch can also be configured to use a specific version for traps generated by the switch.

## Zoning limitations

With firmware 06.00.00 and later, you have the ability to configure large zone sets, including up to 1024 zones and 1024 end ports in a single zone set. [Table 2](#) shows the supported limits for the edge switches and directors.

**Table 2: Zoning parameters supported limits**

Zoning parameter	Maximum value
Number of zone members in a zone	2048
Number of zones in a zone set	1024
Number of unique zone members in a zone set	2048
Total number of zone members in a zone set (where a zone member can be in multiple zones)	4096
Characters per zoning name	32
Number of unique zone members in HAFM Zoning Library	2048
Number of zones in HAFM Zoning Library	1024
Number of zone sets in HAFM Zoning Library	64
Number of end ports	1024
Number of devices supported (including loop devices)	1024

## Using the same firmware

All directors and edge switches in the same fabric should have the same firmware level installed—whether 1 Gbps or 2 Gbps capable, this firmware operates correctly.

The recently released Edge Switch 2/12 had an interim firmware specific for the Edge Switch 2/12, 05.05.00-12. This firmware cannot be used for any other edge switch or director. This interim version is compatible with the M-Series firmware 05.01.00-24 and 05.02.00-13 used for the rest of the M-Series fabric products. The firmware 06.02.00-22 is a common firmware for all the M-Series fabric products, including the Edge Switch 2/12.



Firmware 06.02.00-22 includes minor bug fixes, and provides support for second-generation Edge Switch 2/12 and Edge Switch 2/24 switches. This is the minimum M-Series firmware supported on the second-generation Edge Switch 2/12 and Edge Switch 2/24.

For customers who want to add a second-generation switch to their existing SAN, but are not ready to upgrade their SAN from 5.x to 06.02.00, there is a downgrade firmware version for each of these edge switches which provides compatibility with a SAN running 05.02.00.

Firmware 05.03.01-01 is available for the Edge Switch 2/24, and firmware 05.05.01-01 is available for the Edge Switch 2/12. These versions are installed only on the Edge Switch 2/24 and Edge Switch 2/12, and only when these switches are placed in a M-Series SAN running 05.02.00 firmware. A copy of these versions of firmware, are contained on the HP StorageWorks edge switch documentation and firmware CD (Part Number 524-000001-005).

## **Reinstalling feature licenses**

Feature licenses (or keys) must be reinstalled after performing a factory reset on an edge switch to regain use of the licensed features (e.g., SANtegrity Binding).

## **CTP controls port lights**

Port lights on the edge switch and director products are controlled by the CTP functionality. Certain activities such as firmware updates, IPLing the CTP, or switching over to the backup CTP (director) can cause these port lights to extinguish momentarily until control is reasserted by the CTP. The actual Fibre Channel traffic is not affected during these times.

## **Issue concerning HAFM remote client access to the HAFM appliance with dual LAN configuration**

When using a single public LAN connection at the HAFM appliance for all Ethernet communications, the single LAN connection operates correctly for the following functions:

- Directors and edge switches that the HAFM appliance manages
- Computers seeking remote client access to the HAFM appliance
- SAN management applications such as HP OpenView SAN Area Manager

When using two LAN connections (public and private) at the HAFM appliance, Microsoft Windows and HAFM determine the following:

- Which LAN is to be the private LAN for communication between the HAFM appliance, and the directors and edge switches that the HAFM appliance manages?
- Which LAN is to be the public LAN for communication between the HAFM appliance and computers seeking remote client access to the HAFM appliance?

The issue arises because either LAN connection on the HAFM appliance can be the public LAN or the private LAN. Though the directors and edge switches can be managed via either LAN, the public LAN is the only one that can support remote client access. Thus, if one attempts to access the HAFM appliance via a remote client session and is unknowingly using what has been designated as the private LAN, the remote session is not allowed. The IP address that the HAFM appliance has determined to be the public LAN which supports remote client access, displays HAFM which displays after selecting **SAN > Server Properties**.

HAFM designates the public LAN as the first LAN detected whose IP address is not the reserved private subnet 10 . x . x . x. Thus, if neither IP address is 10 . x . x . x, the first LAN detected by HAFM is designated as the public LAN. This order of detection is influenced by Microsoft Windows and is not guaranteed.

For a dual LAN configuration, both LANs must be connected when the HAFM appliance is booted up. If only one is connected, HAFM interprets this as a single LAN configuration, and the connected LAN is designated as the LAN for remote client sessions.

### Workaround

There are two ways to ensure the public and private designations of the LANs.

- If you use a private LAN IP address, this causes this LAN to be designated as the private LAN. You must also have the public LAN connection active when the HAFM appliance is booting up, or else HAFM interprets this as a single LAN connection configuration, and the 10 . x . x . x LAN is designated as the LAN for remote client sessions.
- You can configure a specified Ethernet interface on the HAFM appliance to be the public LAN (to listen for remote client connections). To configure this feature, you must manually edit a file on the HAFM appliance to explicitly specify which IP address HAFM should use as the public LAN.

For detailed instructions, see *HP StorageWorks HA-Fabric Manager User Guide*.

If the public LAN IP address of the HAFM appliance is ever changed, this file must be edited again to reflect the new IP address.

## Known issues

This section describes the known issues related to the 1U HAFM appliance and the HAFM software.

### Support for speed auto-negotiate

Auto-negotiate is supported. However, HP recommends that the port speed for E\_Ports (for Interswitch Links, or ISLs) be set to a specific port speed (**1Gb/sec** or **2Gb/sec**, as appropriate for the speed of the directors or edge switches being connected) instead of to **Negotiate**. Using a specific port speed decreases the time for a fabric build in response to some perturbation event in the fabric. Similarly, setting a specific port speed for N\_Ports also decreases fabric build time. However, setting a specific port speed for N\_Ports is not required.

There are a few older HBA devices that do not always succeed in logging in to a switch port when the port speed is set for auto-negotiate.

#### Workaround

If an older HBA has difficulty logging into a switch port that has its port speed configured as **Negotiate**, configure that port speed to **1Gb/sec** or **2Gb/sec** according to the operation speed of the HBA connected to that port.

### Losing LAN connection to the HAFM appliance when logged in to HAFM

If the LAN connection to the HAFM appliance is lost while you are logged in to HAFM, the application may stop.

#### Workaround

The LAN connection must be restored. Stopping HAFM has no impact on the Fibre Channel operations of any edge switch or director. Monitoring switch operations, logging events, and implementing configuration changes are interrupted only while the LAN is not connected.

### Effect of no LAN connection to HAFM appliance during boot up

If the HAFM appliance has no LAN connection while booting up, but it is connected after booting up, the remote client sessions to the HAFM appliance are not allowed. Also, the IP address that is displayed when you select **SAN > Server Properties** is possibly incorrect.

### **Workaround**

This is corrected by restoring the LAN connection and rebooting the appliance. Rebooting the appliance has no impact on the Fibre Channel operations of any switch or director. Only monitoring switch operations, logging events, and implementing configuration changes are interrupted.

## **Setting HAFM appliance LAN to use DHCP is activated to wrong LAN**

When setting the IP configuration for the HAFM appliance using the LCD panel, setting DHCP configuration for LAN 1 causes LAN 2, not LAN 1, to be configured for DHCP. Similarly, setting DHCP configuration for LAN 2 causes LAN 1, not LAN 2, to be configured for DHCP.

### **Workaround**

If you wish to configure LAN 1 for DHCP, select LAN 2 instead of LAN 1 at the start of the configuration procedure. If you wish to configure LAN 2 for DHCP, select LAN 1 instead of LAN 2 at the start of the configuration procedure.

## **Event notification by e-mail cannot be disabled for individual switches**

If you enable Event Notification by e-mail, all switches are enabled for event notification by e-mail, and cannot be individually disabled from sending e-mail notifications, even if the **Enable E-mail Notification** check box in the switch Element Manager's Maintenance menu is unchecked. The only way to disable e-mail notification is to disable Event Notification for HAFM for all switches (at HAFM main window, select **Monitor > Event Notification > Email**, and uncheck the box for **Enable Email Event Notification**).

## **Event notification by e-mail or call home can be missing information under certain conditions**

Though very unlikely, it is possible that an Event Notification by e-mail or call home may be missing information normally contained in these messages. This occurs if a switch detects an event that requires a notification to be issued, but HAFM has not completed discovery of the switch. This discovery of a switch is usually completed within a few seconds, so it is unlikely, though not impossible, that an event occurs during this short span of time. Discovery of a switch occurs when it is added to HAFM for management, and when the Ethernet connection to a switch is broken and re-established, such as when a switch's firmware is upgraded.

**Workaround**

When a switch has been added to HAFM for management, or firmware has been upgraded, observe the switch being shown as discovered by HAFM. Check the event log of the switch to ensure there were no faults that occurred during the short time when HAFM was in the process of discovering the switch.

**Sort by domain ID in HAFM product list is incorrect**

If sorting by the **Domain ID** is selected in the HAFM Product List, the products are sorted by domain ID, but the list is sorted alphabetically instead of numerically. For example, sorting by ascending domain ID results in the order 1, 11, 13, 2, 23, 3, 6, 7, instead of 1, 2, 3, 6, 7, 11, 13, 23.

**Non-M-series switches in fabrics may cause errors if they are the principal switch**

If a non-M-Series switch or director is installed in the fabric, and it is the principle switch, it is not recognized by HAFM and thus cannot be managed by HAFM. An icon is not displayed for the switch in the fabric topology view or device list and you are not able to launch an Element Manager. Fabric names do always match the principle switch, and unpredictable results occur with persisted fabrics if an M-Series switch is not the principle switch, or if a switch is added that assumes the principal switch role.

When the principal switch is a non-M-Series switch and the fabric is persisted, incorrect persistent fabric updates occur if the connection to the principal switch is lost. The persistent fabric also fails if a principal switch is added to a M-Series fabric.

**Workaround**

An M-Series director or edge switch should be configured to be the principal switch in all M-Series fabrics being managed with HAFM.

**New sound files are not added to Event Manager immediately**

New sound files do not display in the pull down menu of the Event Manager. They cannot be selected for inclusion in a rule. In order for the new sound files to be available, HAFM services must be stopped and restarted, or the HAFM appliance must be rebooted. This is not disruptive to managed switches, but monitoring and logging functions are interrupted while the appliance is rebooting.

## Show Route port numbers are not always displayed

When the Show Route feature is enabled, the **In Port #** and **Out Port #** information is not available on a Loop Device.

## Wrong number of devices is displayed in the Create View dialog box

In the Create View dialog box, the number of devices in the fabric is displayed incorrectly. Both offline and online devices are included in the count. Only online devices should be counted.

## Reporting function in Event Management may not be accurate

In some cases the Reporting function does not give accurate information about an active SAN and HP strongly advises that you verify information after generating a report. The Reporting function primarily has issues with the **Fabric Ports Report**, where some ports are not listed or duplicate ports are listed.

## HP-UX parameters may need to be changed before you run the HAFM client

The following two HP-UX 11.0 kernel parameters are set too low for most Java applications. Usually you will see this problem as a `java.lang.OutOfMemoryError: unable to create new native thread` error. To resolve the issue, edit the following parameter limits:

- `max_thread_proc`—The maximum number of threads allowed in each process. The minimum value (and default) is 64, which is often too low for most Java applications. Set the value of the `max_thread_proc` higher than the expected maximum number of simultaneously active threads. The maximum value is the value of `nkthread`.
- `nkthread`—The total number of kernel threads available in the system. This parameter is similar to the `nproc` tunable except that it defines the limit for the total number of kernel threads able to run simultaneously in the system. The value must be greater than `nproc`. The default is approximately twice that of `nproc`. The maximum is 30000. The suggested value of `nkthread` is `2*max_thread_proc`. If you have many Java processes running and each running process uses many threads, you should increase this value.

## Client HAFM Login dialog box is not displayed after logging out

In some cases, when the client has logged out, the Log In dialog box is not displayed. If you get inconsistent behavior or an error message, restart the client. SAN data is not affected when you restart the client.

## HAFM appliance may shut down following a firmware download

The HAFM appliance may shut down following a firmware download. If this occurs, you have to restart the HAFM appliance to recover. This is an issue with Java Virtual Machine 1.3.1\_07, which is used in the application. This is only an issue when running firmware 06.00.01 or earlier.

## Ethernet port on HAFM appliance may encounter problems

When you use TightVNC to access the HAFM appliance and you are running HAFM locally on the HAFM appliance, the Ethernet port on the HAFM appliance can appear to hang. When the Ethernet port encounters problems, the following may occur:

- There is an apparent loss of communication to switches being managed by HAFM.
- The appliance CPU usage and memory usage display abnormally high readings.

### Workaround

If this condition persists, it may be necessary to reboot the HAFM appliance. This is not disruptive to managed switches, but monitoring and logging functions are interrupted while the appliance is rebooting.

## Port labels in the performance graph are limited

The port labels displayed in the Performance Graph dialog box display the port number or the port name configured in the Element Manager for the switch. The port labels do not display the nickname or WWN even if **Nickname** or **WWN** is the display mode selected in the main window.

## Exporting an XML topology is not successful for all views

Exporting an XML topology only exports fabric information. For example, exporting an XML topology of a user-defined view displaying a connected set or isolated devices results in an empty XML document.